

Recovery Plan Action Status

Plan Name: Lotis Blue Butterfly Recovery Plan

Plan Status: Final

Plan Date: 26-Dec-85

Lead Agency: USFWS

Lead Office: Arcata Fish And Wildlife Office

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822-7201)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	111	Investigate synecology of wet meadows, bog & forest.	Discontinued	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division	Research: General	Contract, Graduate Student	Species' association with these habitats not definitively known. Ability to continue work on this action at this time hindered by lack of known populations.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	112	Investigate antecology of larval & adult food plants, once these are identified.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Research: Habitat Requirements	Species Expert	Cannot start work on this task, as no known populations. Larval food plants not known with certainty. Species not observed since 1983.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	113	Identify vegetation management needs	Partially Complete	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division	Management: Habitat Maintenance and Manipulation	Internal Technical Assistance, Species Expert	Continue to work with PG&E on vegetation management to minimize impacts at last known site, but species' habitat needs uncertain.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	1	121	Minimize use of insecticides and herbicides nearby (known population)	Ongoing Current	Prior to FY 1995		Pacific Gas and Electric Company, U.S. Fish and Wildlife Service, Endangered Species Division	Management: Habitat Maintenance and Manipulation	Internal Technical Assistance	Ongoing coordination with PG&E for historic site on powerline right-of-way. Agreement with PG&E on vegetation management includes avoidance of herbicides or pesticides within the right-of-way near the site.

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Lotis blue butterfly (Lycaeides argyrognomon lotis)	1	122	Minimize other activities that are incompatible with vegetation and habitat maintenance and management	Partially Complete	Prior to FY 1995		Pacific Gas and Electric Company, U.S. Fish and Wildlife Service, Endangered Species Division	Management: Habitat Maintenance and Manipulation	Internal Technical Assistance	Ongoing coordination with PG&E on maintenance activities at last known site, on powerline right-of-way. Further work elsewhere limited by no known populations and lack of information on habitat requirements
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	13	Develop, implement, revise management strategies.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Management: Planning	Internal Technical Assistance	Need biological information first
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	141	Study other Lycaeides argyrognomon races to develop and test monitoring methods for LBB.	Partially Complete	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Endangered Species Division	Research: Population Surveys	Internal Technical Assistance, Species Expert	General survey method for presence of species developed and used by expert in blue butterflies.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	1	142	Survey known habitat annually	Partially Complete	Prior to FY 1995		Pacific Gas and Electric Company	Research: Population Surveys	Internal Administrative, Species Expert	Last known site surveyed regularly since 1983 (when species last observed), most recently surveyed throughout flight season in 2008 by PG&E contractor/species expert (species was not observed).
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	15	Survey additional sites within the historical range of the lotis blue butterfly for presence of potential larval foodplants, habitat and LBB populations	Partially Complete	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Research: Population Surveys	Contract, Species Expert	Two surveys of historic range have been conducted to date. Most recent survey, in 2003-2004, was FWS-funded. One additional site surveyed in 2005.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	21	Select habitat sites.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Reintroduction	Internal Technical Assistance, Species Expert	

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Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	22	Secure habitat sites	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Acquisition: General	Internal Administrative	Will require additional effort beyond FY-3. Area with potential habitat near Point Arena secured and in BLM management (Stornetta Ranch)
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	231	Remove exotic flora, fauna.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Management: Habitat Maintenance and Manipulation	Contract, Internal Technical Assistance, Volunteer	
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	232	If needed, reintroduce necessary biological components of LBB habitat as identified by ecological studies.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Management: Habitat Maintenance and Manipulation	Contract, Internal Technical Assistance	Costs and scheduling TBD following further research. No known site to manage, and at this time (2005), knowledge of habitat requirements too limited to implement.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	241	Obtain LBB from existing colony for reintroduction and/or to serve for broodstock.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Propagation	Internal Technical Assistance, Species Expert	Initiated only if determined necessary. Effort beyond FY-3 may be needed. No known population (colony) as of 2005
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	2421	Determine the necessity and feasibility of captive propagation.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Propagation, Management: Reintroduction	Internal Technical Assistance	This and other captive rearing actions are not feasible without a known population
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	2422	Rear individuals of surrogate Lycaeides argyrognomon subspecies to refine rearing techniques before LBB captive breeding is attempted.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Propagation	Contract, Species Expert	Captive breeding not feasible until there is a known population of LBB
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	2423	Devise an artificial diet for efficient lab rearing of LBB.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Propagation	Species Expert	Rearing methods known for closely-related species.

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Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	2424	Rear the LBB from eggs laid by stock captured at the known colony.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Propagation	Species Expert	Need to locate LBB population first
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	25	Transplant individuals of surrogate L. argyrognomon subspecies to refine techniques for establishing new butterfly populations	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Reintroduction	Graduate Student	
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	26	Reintroduce LBB into secure habitat.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Management: Reintroduction	Graduate Student, Internal Technical Assistance, Species Expert	Not feasible without known LBB population as source for reintroduction
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	31	Determine larval and adult foodplants.	Partially Complete	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Research: Habitat Requirements	Graduate Student, Species Expert	Taxon expert conducted surveys within historic range and identified potential host plants. Further work would require a known population.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	32	Describe LBB's egg, larval, and pupal morphology.	Not Started			California Department of Fish and Game	Research: General	Contract, Graduate Student, Species Expert	Requires known LBB population
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	33	Describe the life table, sex ratio and population size of LBB colony	Not Started			California Department of Fish and Game	Research: Demographic Studies, Research: Population Surveys	Contract, Graduate Student, Species Expert	Requires known LBB population
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	34	Identify predators, parasitoids and larval symbionts.	Not Started			California Department of Fish and Game	Research: Other Information, Research: Predation	Contract, Graduate Student, Species Expert	Requires known LBB population
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	35	Describe adult behavior, mating, oviposition, etc.	Not Started			California Department of Fish and Game	Research: General	Contract, Graduate Student, Species Expert	Requires known LBB population
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	36	Determine habitat requirements and utilization.	Not Started			California Department of Fish and Game	Research: Habitat Requirements	Contract, Graduate Student, Species Expert	Requires known LBB population

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Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	37	Decide if more populations are necessary for recovery.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Management: Reintroduction	Internal Technical Assistance	Populations needed before relevant (since none found during recent 2-year survey). Task requires first completing tasks #31-36.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	3	41	Provide audio-visual programs for public display.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Other: Information and Education	Contract, Internal Technical Assistance	
Lotis blue butterfly (Lycaeides argyrognomon lotis)	3	42	Erect interpretive signs on state park lands.	Not Started			California Department of Parks and Recreation	Other: Information and Education	Contract	Surveys for LBB on State Park lands within historic range have not found the species.
Lotis blue butterfly (Lycaeides argyrognomon lotis)	1	51	Enforce land use plans and ordinances to protect LBB habitat	Ongoing Current	FY 2000 - FY 2004		Mendocino County, California, California Department of Fish and Game	Management: Land Use, Other: Law Enforcement, Other: Regulations	Internal Field Assistance	Lack of known sites or habitat requirements limit ability to implement
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	52	Monitor agency compliance with Section 7 consultations concerning the lotis blue butterfly.	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division	Other: Regulations	Internal Technical Assistance	Section 7 consultations for species are very rare
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	531	Enforce all laws.	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Law Enforcement Division	Other: Law Enforcement	Internal Technical Assistance	Full implementation limited by lack of information on LBB distribution and habitat requirements
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	532	Evaluate success of law enforcement.	Not Started			U.S. Fish and Wildlife Service, Law Enforcement Division	Other: Law Enforcement	Internal Technical Assistance	
Lotis blue butterfly (Lycaeides argyrognomon lotis)	2	533	Propose new regulations	Not Started			U.S. Fish and Wildlife Service, Law Enforcement Division	Other: Regulations	Internal Technical Assistance	Implementation limited by lack of information on LBB distribution, habitat requirements, and thus regulatory needs